A record of morbidity and medical request profiles in international humanitarian aid, taking the earthquake in Bam in Iran in 2003 as an example

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J Public Health (2009) 17:97–106
DOI 10.1007/s10389-008-0230-9

ORIGINAL ARTICLE

A record of morbidity and medical request profiles in international humanitarian aid, taking the earthquake in Bam in Iran in 2003 as an example

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Received: 17 April 2008 / Accepted: 22 September 2008 / Published online: 18 October 2008

Abstract
Objective With the humanitarian work of the International Red Cross after the earthquake in Bam, Iran, it should be noted that international and national cooperation is possible according to recognised standards and concepts, and therefore morbidity records can be included uniformly in the context of day-to-day work even in post-disaster situations. The data ascertained show changes in the disease spectrum. Basic health provision according to the primary health care concept has priority in the post-disaster response (> 6 days) to the earthquake compared to more surgically oriented medical acute aid from abroad.
Material and methodology In the international consensus conference at the beginning of January 2004, uniform morbidity recording was fixed to simple standardised disaster case definitions. The recording of traumatic, infectious and non-infectious diseases was carried out during the routine work in the outpatient facilities of the emergency response units of 3–31 January 2004. Examination was according to the following indicators: proportional morbidities and sum of the proportional morbidities.
Results and discussion The complete examination time period included 16,677 new cases. The health facility rate only gradually increased. Temporal fluctuations in the numbers treated may be caused by secondary care of the injured, by a possible lack of accessibility (transport problems) or an increased acceptance of facilities. A written specification of the case definitions was not carried out in Bam, and so a comparison is not possible for recorded morbidities at the same time, and consistency cannot be reached for some of the data. Nine diagnoses/categories cover 98.68% of the consultations in the complete time period. Non-traumatic health problems predominate for the whole of the month. The category "others" is too high with 57.94%. Therefore, it may be assumed that certain diagnoses were overestimated, underestimated or not recognised. Vulnerable groups (children, women, the old) were not completely included.
Conclusion Standards and guidelines for health care in humanitarian aid exist and are of help during planning, decision finding, execution and communication. Data acquisition instruments (registering books and patient files) should be developed and standardised by national and international humanitarian groups. The recording of morbidity is a simple instrument in the context of outpatient facilities and provides valuable information for further work during disasters.

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Keywords Earthquake Bam Iran · Standardised morbidity records · Primary health care · Emergency response units · International humanitarian aid

Abbreviations

WHO	World Health Organization
UNHCR	United Nations High Commission for Refugees
ERU	Emergency response unit
NGO	Non-governmental organisation
MOHME	Ministry of Health and Medical Education Iran

IFRC	International Federation of Red Cross and Red Crescent Societies
REA	Rapid epidemiological assessment
PHC	Primary health care

Introduction and surrounding conditions

An earthquake—6.6 on the Richter scale—destroyed the city of Bam in Kerman province in the south-east of Iran on 26 December 2003. More than 35,000 people died, approximately 23,000 people were injured and more than 75,000 inhabitants were made homeless. The infrastructure of the region was destroyed completely. The earthquake caused an almost complete breakdown in the structures for health care in the region around Bam. Approximately 240,000 people partly or completely lost access to basic primary health care. According to the national disaster plan in a first disaster response, approximately 13,000 people were flown out for further medical aid. In order to reconstruct the infrastructure and to provide for the population, the international community was asked to help. With other organisations, the International Red Cross and Red Crescent Societies consolidated the medical infrastructure—which had been completely destroyed in the earthquake area—for the remaining population. At the same time, a uniform obligatory daily health reporting system both for national and international organisations (the Iranian Ministry of Health, the Iranian Red Crescent Society, the International Federation of Red Cross and Red Crescent Societies, the World Health Organization) was established within the first few days so that there was a uniform data set for 3–31 January. All in all, approximately 16,677 new cases for the facilities mentioned above were provided for on an in- and outpatient basis. In weekly meetings, results were discussed. With these results, we may see that a uniform reporting system is possible even in acute disaster situations and a morbidity reporting system may illustrate that the meaning of basic health care has priority in an earthquake area according to the primary health care concept a week after the disaster.

Historical background

In the last 30 years, rapid epidemiological assessment (REA) has itself developed into an essential instrument for disaster management. However, it is not a valid recording instrument recognised as uniform on an international level. The United Nations and other international organisations have, therefore, done their best to develop standardised instruments since the middle of the 1990s. It is generally agreed that a minimal essential data set is necessary for the evaluation of the health status of the population concerned. This data must include leading public health diseases and should also provide a basis for further humanitarian activities, regular monitoring and the evaluation of such activities (Noji and Toole 1997).

The Sphere Project: "Humanitarian Charter and Minimum Standards" (Sphere Project 2004)

The Sphere Project, which was established in July 1997, represents an important process in cooperation between different organisations and facilities. This project, a syndicate of the international humanitarian community, was established to work out in a theoretical and practical manner how high-quality humanitarian aid can be realised. In order to realise this, more than 700 employees from 228 organisations in over 60 countries have collected ideas on "good practice" for over 3 years; these ideas were first published in a manual in January 2000. Besides a humanitarian charter, minimal standards are defined, and key indicators such as evaluation instruments were developed for five different areas of humanitarian work (water supply and sanitation, nutrition, food aid, shelter and site planning, warehouse management and health services). In the field of medical care, the aim is to identify the most frequent health problems and to place them in an efficient and effective context. Standards and qualitative and quantitative key indicators are listed. Furthermore, there are forms for simple data collection as well as forms for the calculation of morbidity and mortality. Experience in the last few years are reflected here. Sphere emphasises that, besides all standards, respective indicators and guidelines must be adapted to the local political and humanitarian conditions, respectively (Griekspoor and Collins 2001).

World Health Organization (WHO)

The WHO has been active in humanitarian work and in aid after disasters since the 1960s. The Department of Emergency and Humanitarian Action (EHA) is increasingly becoming the "intervention department" in crisis situations.

Their experience as an organisation of the WHO has been put into use in various disasters in the last few years (Loretti et al. 2001). During the earthquake in Gujarat in western India in 2001, the WHO managed to use a decentralised system to coordinate aid in a humanitarian disaster for the first time. The great WHO campaigns "Roll Back Malaria", "Kick Polio Out" and "Making Pregnancy Safer" were revised to contain special strategies for working in complex emergency situations. In 1999, the WHO revised and established "rapid health assessment" for the first time. RHA is a systematic collection of objective and subjective information on damage. It identifies which

urgent basic care is necessary for the affected population and provides corresponding answers.

Emergency response unit concept of the International Federation of the Red Cross and Red Crescent Societies (IFRC)

The emergency response units (ERU) are an essential component in the international disaster plan of the International Federation. Within 48–72 h they are prepared to offer secondary and tertiary aid after a disaster. These units, already equipped and flexible enough for local needs in the field of application in the country of origin, are also able to adapt to medical needs on the spot. The ERU were developed at the beginning of 1990 to improve the speed and efficiency of the Federation disaster response. The units are part of a global emergency response network and, therefore, reduce the burden on the national Red Cross societies and delegations. Unusual features can be seen in the ability to react speedily to new and unexpected disasters, the possibility of delivering fast and efficient disaster aid worldwide and the possibility of standardising emergency help and the ability to respond to varying and sometimes long-term needs of the population concerned. The units are conceived so that they can provide materials for 1 month. The teams in the units are entrusted with the training of each unit so that they can completely be assigned to local partners within 4 months. On the one hand, "basic health care units," and on the other hand, "referral hospitals" are available for medical provision and aid. The basic health care units offer immediate curative, preventative and general medical aid. This type of unit can care for approximately 30,000 people in the health sector base. When required, it can be changed into a nutrition centre, or into a base for mass vaccination. The hospital functions as a hospital for basic support with medical and surgical units. A transfer hospital with a capacity of 120–150 beds includes departments of internal medicine, paediatrics, gynaecology/obstetrics and surgery; basic care for approximately 250,000 people can be guaranteed. Moreover, Radiography, consists of an OT tent with two operating tables, a laboratory, a delivery room and a large outpatient department. Which unit is put to use in a concrete sense depends on the requirement plan which is prepared by the field assessment and coordination team or the regional disaster response team; it is coordinated by the disaster management and coordination division.

Public health-associated problems after an earthquake (Sphere Project 2004)

On the one hand, earthquakes cause a high number of dead bodies and many injured who suffer from traumata, asphyxia and dust inhalation. On the other hand, they also cause the destruction of the infrastructure. Medical care of the chronically ill is, therefore, aggravated and a large part of the population affected must survive in the open. Within the disease spectrum, there is a high risk of acute heart attacks, exacerbation of chronic diseases such as diabetes and hypertension, fear and other emotional problems not to mention surgical injuries and traumata. Although the outbreak of infectious diseases is rather rare, surviving in the open and the destruction of the infrastructure and housing increases the probability of the same; it is important that surveillance systems pay more attention to this problem. During the event or impact phase, mortality mainly depends on how fast those people buried alive can be rescued. Studies of different earthquakes—Tangshan, China in 1976, Campania-Irpinia, Italy in 1980, Armenia in 1988 and the Philippines in 1990—have shown that the probability of surviving decreases considerably in the course of a few hours. After speedy rescue, immediate medical care is decisive in the acute emergency phase which follows. Time as an important factor means that this phase is also very limited. The data on different earthquakes in Guatemala in 1976, Mexico in 1985, Armenia in 1988 and Egypt in 1992 show that the rate of hospitalisation returns to normal within 3–5 days. On day 6 at the latest, the main provision of medical services can be implemented in outpatient units (Noji 1997). A post-emergency phase follows. Effective medical intervention and public health measures are dependent on how contemporary health problems are for the affected population.

Health structures in Iran

The right to health care and access to the same is guaranteed in the Iranian constitution. Basic public health is given much importance; 30–35% of the complete health budget is financed through public funds and through a (PHC) delivery system. The provision of health care is subject to the Ministry of Health and Medical Education (MOHME) which is responsible for all public health management, the private health sector and non-governmental groups (NGO). The PHC network covers approximately 90% of the population and is very common in rural regions (Social Security Research Institute, Iran 2002). A population structure with typical public health problems, but also a high prevalence of non-communicable diseases (diabetes, hypertension), was found in Bam/Kerman shortly before the earthquake (EarthTrends 2004). There is a past history of epidemics of typhoid fever and cholera and a risk of pediculosis and other cutaneous diseases. Malaria and leishmaniasis are also known to be endemic in the area (WHO 2004).

Methods

Development of a uniform morbidity recording system

A uniform morbidity recording system was developed in cooperation with (inter)-national representatives of WHO, MOHME and the IFRC at the beginning of January 2004. This is valid for the outpatient department of the central tent hospital as well as for the three basic health care units which were developed in the region of Bam. Working with this instrument and the results of the same were a topic for weekly discussions within this circle of experts.

Recording of vulnerable groups

Age groups of children under 5 years, 5-year-olds and those older than 5 years were included as patients. Morbidity recording based on age or according to gender were not implemented.

Recording of traumatic, infectious, non-infectious and other diseases

The following diagnoses and symptoms are determined for daily recording:

Traumatic diseases Earthquake-associated injuries, emotional traumata, traumata caused by other events (road accidents).

Infectious diseases Respiratory tract infections of the upper and lower respiratory tract: cough and cold, acute ear infections, mastoiditis and sore throats as well as pneumonia, diarrhoea, subdivided into watery diarrhoea and bloody diarrhoea, measles and other infections such as hepatitis, tuberculosis (TB), meningitis and anthrax, infections from animal bites and other indescribable infections; malaria was not mentioned additionally.

Non-infectious diseases Gynaecological cases and obstetrics; malnutrition; chronic diseases under treatment, and in all other cases being treated—the category "others".

Data collection

Data were collected between 3 January and 31 January 2004 and recorded by doctors working in these facilities after they had been introduced to working with the recording system. Data were included according to the principle of the "standard simple case definition". Case definitions were not fixed in writing. Data security was guaranteed by an anonymous, nameless recording.

Data processing

In a daily report, the data were recorded in a daily report (Excel 5.0). The indicators of proportional morbidity (the number of new cases daily divided by the total number of new cases for every special disease, expressed as a percentage) and the sum of the proportional morbidity were calculated.

Results

Daily work with the recording system

For the period from 3 January until 31 January 2004 in the outpatient departments, 16,677 new cases were tabulated using the fixed morbidity recording system. Of these, 1,509 were younger than 5 years (=9.04%). Only new visits were included and registered with a main diagnosis or in one category. The recording was documented in writing at the same time by the doctor on duty during the examination. A distinction between "new case/diagnosis" and "consultation without diagnosis" was not made (Fig. 1).

Temporal fluctuations and particularly the second increase in treatment numbers may be connected; those first injured who were initially evacuated and at first provided for elsewhere, or who escaped to family members, slowly return to the region and go to medical facilities for secondary medical provision. On the other hand, an increased acceptance of these facilities may also be reflected here.

Results of the recording of traumatic, infectious, non-infectious and other diseases

Nine diagnoses/symptoms or categories include 98.68% of the consultations in the complete time period. Included in the first place with 57.94% is the category "others", followed by 12.68% of cases with upper respiratory tract

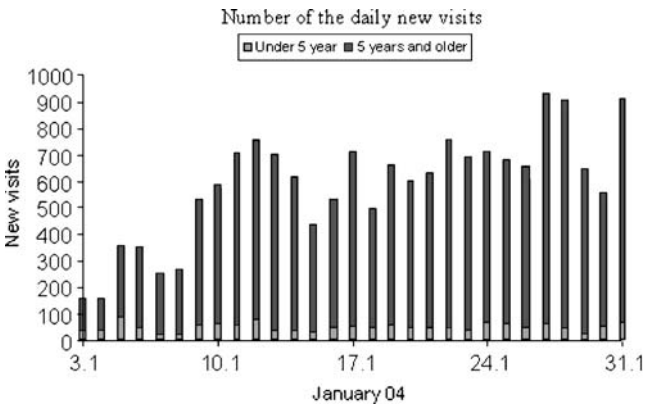

Fig. 1 New visits daily at the outpatient departments of the emergency response units of the International Red Crescent in Bam, Iran, from 3 January to 31 January 2004 (our own representation)

Table 1 Summary of proportional morbidity at the emergency response units outpatient departments

Category	Retrospective review (3–31January) of outpatient health facilities
New visits (*n*)	16,677
Others (%)	57.94
Upper respiratory infections (%)	12.68
Earthquake-associated surgical injuries (%)	7.26
Psychiatric illnesses (%)	4.7
Other infections (%)	4.43
Chronic diseases under treatment (%)	4.37
Surgical injuries, not earthquake associated (%)	3.58
Gynaecology/obstetrics (%)	2.2
Pneumonia (%)	2.15

Bam area, Iran, 3 January through 31 January 2004 (our own representation)

infections. Trauma-associated injuries are in third place with 7.26%. Other recorded infections amount to 4.43%. Chronic diseases under treatment represent 4.37% and psychological traumata 4.7%. Other injuries not associated with the earthquake are included with 3.58%. The category of gynaecology/obstetrics accounts for 2.2% and pneumonia represents 2.15% (Table 1).

Traumatic diseases

Of all cases, 89.16% are non-traumatic diseases. Only 7.26% are included as earthquake-associated traumata. The degree or the type of the injuries was not differentiated. The same applies to the category of "other somatic traumata—not earthquake associated" (3.58%) which were caused by burns or road accidents. Traumatic injuries as a direct result of the earthquake were between 27.52 and 32.9% on 3 and 4 January and gradually decreased to 1.59% by the end of the month. It is noteworthy that, in the comparison of the categories traumatic/non-traumatic, the non-surgical diagnosis predominates throughout January (Fig. 2).

Psychiatric diseases such as post-traumatic stress disorders, anxiety-related illness and depression belong to illnesses/symptoms included in the most frequent nine. After a first high, a time delayed second increase is recognisable in the recording at the end of the 2nd week. A clear drop at the end of the 3rd week and then swaying numbers are to be seen daily in the 4th week. These considerable fluctuations from day to day most likely result from uncertainty in the recording of diagnoses and from the varying criteria of staff not trained specially for this purpose.

Infectious diseases

Diarrhoea and illnesses which can be controlled by the use of vaccinations were considerably more than < 1%. As expected, since a large-scale vaccination campaign was carried out in the region a week before the event, the number of cases of rubella and German measles was low. Respiratory tract infections are initially increased by the high dust load and low winter temperatures. Upper respiratory tract infections dominate over the complete time period. After an early high increase in the 1st week, a bilateral increase was registered at the beginning of the 3rd week. This may have been caused by weather conditions, and also by clearing measures, which therefore caused a higher dust load. Pneumonia is one of the most frequent morbidities; however, it was less than 2% in the 2nd week.

Non-infectious diseases

Chronic diseases such as diabetes and hypertension represent the fifth most frequent recorded diagnoses. Within the first few days, no new case was diagnosed. A clear increase was recorded between the 6th and the 8th days of treatment. Renewed waste, a second increase on the 15th day of treatment, and then a gradual decrease to less than 5% of the treatment cases was recorded. The destruction of health service structures, of pharmacies, medicine depots, of equipment and the death of many health workers led to a clear increase in the need for care in this field. Furthermore, a metabolic disorder is also favoured by occurrences accompanied by acute stress. A gradual decrease in the same may be due to a sufficient supply of medicine, but insufficient accessibility to the facility should also be taken into consideration (transport problems). A renewed increase may be a growing expression of a complete deterioration and/or an increased interest in a foreign medical supply.

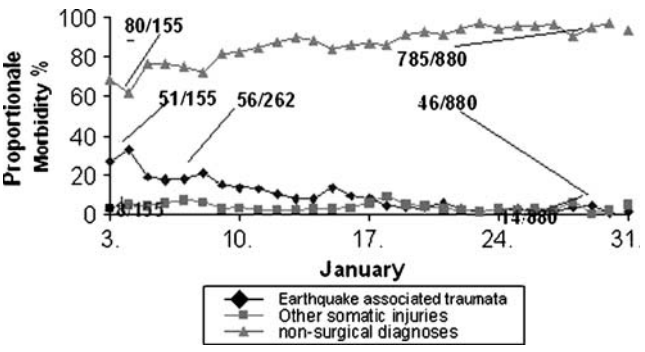

Fig. 2 Proportional morbidity and absolute number of earthquake-associated traumata, other somatic injuries and non-surgical diagnosis at the emergency response units outpatient departments. Bam area, Iran, 3 January through 31 January 2004 (our own representation)

Other non-traumatic diseases

The category "others" is in first place with 57.94%. On the 18th treatment day, the numbers drop to 4%. This event appears to be the second highest treatment of the chronic illnesses under treatment at the same time. A constant increase in this category is to be seen.

Discussion

Strengths and weaknesses of a uniform evaluation system

The consequences of an earthquake on the state of health of the population can be measured and described by a number of indicators. Furthermore, indicators can provide basic information which may be reflected in the further course of the outcome of humanitarian aid. Outpatient departments are suitable for data acquisition on morbidity in the form of uniform recording systems which can be considered as a surveillance system. Besides, they facilitate monitoring and evaluation of the humanitarian relief programme. In the development of an elevation instrument, it is essential to establish cooperation between locum tenenses of the health ministry and different national and international NGO. In this way, it is possible to avoid that activities take place twice or not at all. On the other hand, it is possible to make sure that outbreaks of epidemics are recognised and checked, and at the same time, that resources are mobilised in a sensible manner. Through international and national cooperation, one achieves a high impact, which in turn enables the population concerned to have optimal access to health care. Furthermore, this instrument can be adapted at a local and central level, and questions on its implementation can be settled. The development of such an instrument is to be evidence based and orientate itself according to the latest scientific progress. Not everything can be included in a post-emergency phase. Data collection must include diseases with a high public health relevance and include those with an epidemiological potential; it should also orientate itself according to existing established guidelines. A consensus conference must consequently identify in advance a restricted number of main diseases which may represent the greatest health problems, or those which may cause the same in the future (Noji 1995).

The WHO recommends the recording of the following diseases or symptoms (WHO 2005): infectious diseases which reflect the main cause for epidemic outbreaks such as respiratory infections, diarrhoea with a distinction between bloody diarrhoea and watery diarrhoea (cholera, dysentery) as well as illnesses which are avoidable through vaccination and prophylaxis (measles, meningitis and malaria). Recording must follow standard case definitions according to WHO guidelines. Besides, when stabilisation of the situation begins, it is also recommended that the additional recording of TB, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), newborn child tetanus and sexually transmitted diseases should take place. A category "others" is recommended by Sphere for any other illnesses without public health interest which might occur during the post-emergency phase (e.g. stroke) (Brennan 2004). Insignificant changes of forms and definitions are dependent on the context of the disaster and on cooperation. A leading organisation such as the WHO, the UNHCR or the national health ministry will usually take on the responsibility for a standardised recording form. This was realised in Bam. Besides the work already undertaken, a consensus conference which consisted of national and international medical coordinators (Iranian MOH, the Iranian Red Crescent Society, the International Red Cross and Red Crescent Federation, WHO) took place. A uniform recording instrument was developed for the different outpatient facilities of the ERU in this group. The diagnoses and symptoms were fixed after simple standardised case definitions. In a weekly meeting, the recording instrument and the data imposed were discussed. The following points should be complied with by clinical employees during data collection:

1. Diagnostics and documentation of the main diagnosis according to fixed standard definitions (see above).
2. Documentation of new cases, but not of patients who perhaps come for a check-up.
3. The possibility of a category "zero reporting" and the possibility of a distinction between "new cases/diagnosis" and "consultation without diagnosis". Not every consultation at a foreign medical humanitarian facility has exclusively medical or psychological reasons (see above).

As in the case of every project, only open, transparent and regular communication with national and international partners can enable the execution of a programme and increase its acceptance These partners must be involved in all processes of the programme design, its planning, implementation and evaluation, and when required, discussion should lead to a majority agreement.

Among other aspects, it may thus be explained that at the express request of the national Iranian Health Ministry despite the objections of the other members anthrax also appears on the list.

Similar difficulties are reported in the category "other infections," and particularly in the TB diagnostics. AIDS/HIV and sexually transmitted diseases are not mentioned. This may be because of the political context. However, in a surveillance system of the Iranian Health Ministry taking place simultaneously, the necessity of "reproductive health" is clearly pointed out (MOH Iran 2004).

A written specification and accessible use of the "case definition" for everybody concerned is important. The use of the standards of the national health ministry would be optimal since, on the one hand, the adaptation to local conditions already exists, and on the other hand, the consistency of the database could be increased.

This was not clearly put into practice in Bam. Written specification of the standardised case definitions did not exist, and so comparability was not possible for recorded morbidities registered at the same time, and consistency for data could not be reliably achieved.

As an early warning system, this instrument is also not applicable since a suspected epidemic can only be examined when new diseases are identified systematically. Therefore, it must be strictly defined what exactly constitutes a case.

Among others, these difficulties also cause a high specification regarding the category "others" (> 50%), which, in contrast to the preferred definition by Sphere, includes all medical cases which could not be classified in other categories (Sphere Project 2004). It may, therefore, be assumed that certain diagnoses were overestimated, underestimated or not recognised at all. The indicator "proportional morbidity" is a simple evaluation opportunity for common diseases when the size and composition of the prominent population frequently changes. However, it is also a very rough recording parameter which must be interpreted carefully, particularly when small changes of the metre proportionally lead to a great proportional variance, or if an increase in the denominator minimises the real problem. Incidence rates and absolute numbers are the more sensitive instruments. No extensive disaster relief policy will change its strategy on the basis of such unreliable data. However, the results are valuable to avoid, among other things, unnecessary intervention.

Strengths and weaknesses in the recording of traumatic diseases

After the earthquake in Egypt in 1992, 70% of all patients with surgical injuries associated with earthquakes were provided for within the first 36 h. The authorities concerned were not sufficiently prepared for further provision of general medical services after the initial 36 h. When foreign units arrive, approximately 5–7 days after the occurrence of an earthquake, most surgical interventions are already completed. Taking the earthquake of Gujarat in 2001 as an example, Bremer illustrates that the international aid which followed, and which was insufficient, was because of the following reasons:

1. Clean public health indicators were not developed.
2. Efficient coordination was non-existent.
3. Bureaucracy prevented optimal conditions for provision.
4. Insufficient, overestimated or partly irrelevant relief actions were initiated.
5. Uniform rules in the delivery of disaster relief had not yet been developed (Bremer 2003).

In Bam, all serious casualties were already provided for by the armed forces and by the Iranian Red Crescent and flown out for further treatment within the first 24–48 h. It can thus be assumed that surgical trauma provision after more than 6 days is no longer a matter of high priority This is also illustrated in our results. Non-traumatic disease cases predominate throughout the complete recording time period.

At the beginning of January, the symptom complex of emotional traumata was already identified by the Iranian Health Ministry as one of the outstanding public health problems. The incidence of post-traumatic stress disorder was estimated to include up to 40% of all survivors (Ahmad 2004).

The diagnostics of emotional traumata in the outpatient facilities described is also identified as one of the nine most frequent diagnosed categories, but striking fluctuations are also apparent. It is to be assumed that staff training was not sufficient in this field and/or there were no clear diagnosis criteria. Governmental and non-governmental organisations, psychologists and psychiatrists were sent early (approximately 7–20 days after the event) to identify and to be able to treat the persons affected at an early stage. Numerous "mental health" programmes were implemented after this. Among other things, there was a report in June 2004 on a psychosocial support programme of the IRC (IFRC 2004). The diagnostic work-up and early therapy of post-traumatic stress disorder has only gained in importance within the last few years, and facilities of the ERU have not been sufficiently taken into consideration at this early stage (IFRC 2004).

Infectious diseases

Even if direct comparability of the data is not possible because of the difficulties described above, it may well be illustrated in an active national surveillance system in Bam that "upper respiratory tract infections" represent one of the leading health problems. Besides this, clear increases in high blood pressure and cardiovascular diseases are to be seen in this epidemiological data collection (Akbari et al. 2004). In the Bafia camp in Bam, Médecine Sans Frontières (MSF) were responsible for medical care. Basic medical care could be sustained mainly through the use of mobile clinics. At the end of January, MSF reported that since December 2003 patients with infections of the respiratory tract, gynaecological problems and psychological problems

had in the main been treated; as a result of this, the aid programme could be adapted in good time. No outbreaks of epidemics were reported; only one case of watery diarrhoea was reported. If one compares the health indicators of the region Kerman/Iran with the national statistics before the earthquake, it is noticeable that most endemic diseases in the region were malaria and cutaneous leishmaniasis. Typhoid fever and cholera were also active up to 2000 (EarthTrends 2005).

Furthermore, Iranian health indicators compared nationally depict a population structure with typical public health problems and high prevalence of chronic diseases in need of treatment (diabetes, cardiovascular diseases, etc.) (Asadi-Lari et al. 2004). Shortly before the earthquake, a vaccination campaign (rubella, measles) was carried out; 95% of the children who had reached their 1st year of life were fully immunised.

Non-infectious diseases

The number of the chronic diseases under treatment also belongs to the group of nine leading diagnoses/categories. One can expect a high number of older people, who because of cardiovascular diseases, metabolic and respiratory disturbances, require regular support and supplies of medicine. Through an abrupt interruption of supply structures as well as additional massive physical and emotional stress during the disaster, the medical needs of this group naturally increase. This health problem has already been described after numerous disasters, particularly after earthquakes.

The recording of the vulnerable groups

The acceptance of and accessibility to facilities is important to every humanitarian unit. The following groups are particularly at risk in the post-event phase: women, children, older and handicapped people. Furthermore, membership in certain ethnic groups, certain religion groups and homeless people can be threatened. It is, therefore, to be viewed critically that these vulnerable groups were only partially included in our data. Women in an Islamic Muslim context are a particularly vulnerable group. The old and the very young are threatened by falling outside temperatures in the earthquake area and by having nowhere to live. Our example is a recording of children under 5 years, 5-year-olds and those older than 5 years. However, an age-based representation of the distribution of disease is not possible. Furthermore, no division was carried out according to gender, and so vulnerability cannot be accurately assessed. Owing to an initially low utilisation rate, it is feared that certain vulnerable groups are not assessable.

The future of health reports in the international context

International coordination and information exchange are processes which should make necessary cooperation easier and facilitate the same. However, one cannot generally assume that the outcome will be positive. Thus, it is also possible in regular international meetings that the essential aims, such as the exchange of information, analysis, the remedying of problems or action, cannot be realised. Special difficulties are also possible if national or international protagonists wish to insist on their own standards and see no sense in abandoning their own guidelines. The demands of the Iranian Health Ministry to include the categories of anthrax and other infections, especially TB, in the early post-event phase in Bam illustrates quite clearly that an attempt was made to exploit the instrument for politically national interests. “Creating a culture of information sharing that promotes the systematic collection, use and free flow of data, information and ideas, facilitates informed decision-making and builds trust and commitments among stakeholders” is represented as the greatest challenge in the OCHA Symposium 2002 “Best Practices in Humanitarian Information Exchange”.

This conclusion is formulated so generally that it is generally accepted. In reality, however, there are many problems. On the one hand, information and decisions regarding humanitarian aid are political and require innumerable difficult compromises. On the other hand, effectively collecting and using information are extremely difficult tasks. After disasters, the exchange of information is weak and only fragmentary among the single protagonists. After the acute phase of a current disaster, medical care should typically change to primary health care. Experience shows that this change takes place in a disaster which has suddenly occurred faster than in a hunger disaster. How well emergency aid is geared to the needs of the affected population is, in the final analysis, dependent on how close this humanitarian aid is to the national strategy of public health (Abdallah and Burnham 2000). If one evaluates the pre-event status of the population, it becomes clear in a vulnerable society with deficits in health structures and health care that reasons already exist which contribute to the extent of a catastrophe. With individual clear public health indicators, the requirements and the vulnerability of exposed population groups can be recorded. In the post-disaster response, it is important to use standardised guidelines as well as a concrete analysis of what is required. These concern “treatment guidelines, drug donations and standard case definitions”. Bremer pleads for the use of relief coordination centres which provide continuous surveillance of health conditions worldwide at any time. Furthermore, he recommends a team of experts who should coordinate and

lead international disaster aid and which is responsible for the coordination and provision of disaster teams and the administration of emergency units. Indicators for the eight elements of primary health care for the WHO should be compared in the pre-event, acute and post-event phases, and this comparison should be used in order to evaluate the extent of the disaster and the medical measures necessary (Bremer 2003). Data collection and data analysis may be contradictory. The strictest indicator frequently seems to illustrate a lack of information although there is a wealth of unused data (Colombo 2002). On the other hand, extensive data collection also seems to be problematic. Even when simple process indicators are available and seem adequate, expensive epidemiological data are ascertained and analysed in order to evaluate the health impact of a programme. The list of the diseases documented is often redundant. A "quick and dirty" epidemiology is frequently sufficient in the acute emergency phase. Indicators such as mortality or morbidity do not initiate action alone. However, they influence essential decisions primarily when relief programmes are adapted, an emergency phase is transformed into a rehabilitation phase and/or programmes are evaluated. Using this information, coordinating it with information from other sources in order to check its consistency and comparing it with other standards are all recommended measures (Colombo 1997).

Conclusion

Disasters may often be answered with an altruistic actionism. Standards and guidelines for health care in humanitarian aid, be it in acute emergency aid or reconstruction aid, and chronic crises do exist and help in planning, decision-making, in execution and communication. It is wrong and dangerous to assume that standardised data collection is too time consuming. Otherwise, the danger of non-purposeful aid for humanitarian organisations is too great. One of the main demands is that surveillance systems must be established uniformly in the field of humanitarian disaster aid. Data acquisition instruments (registering books and patient files) should be developed and standardised by national and international humanitarian groups. The recording of morbidity in the framework of an outpatient facility is a simple, inexpensive instrument and provides valuable information contributing to further disaster work. It is normal to use these passive surveillance systems for the analysis of needs and early warning systems; they may equally well serve as an evaluation instrument for the impact of relief programmes. At the same time, a uniform disaster terminology, instruments with high external validity, good internal validity and high reliability are required.

After the disaster is before the disaster. In order that recognised methods and concepts for health care in emergency aid and reconstruction help may take effect, it is important that a continuous exchange of experience takes place. In the framework of a pre-disaster plan, standardised morbidity recording for outpatient facilities should already exist, and uniform patient files should be developed; the same should be adapted to local needs in the post-event phase.

Furthermore, better epidemiological knowledge is desirable even here. It is important to learn more about risk factors for mortality and the types of injuries and diseases which are caused by an earthquake. National "baselines" on the state of health should be ascertained regularly and made accessible to all. In this way, special health problems, health risks and vulnerable groups may be better identified. Consequently, effective disaster aid can already be optimised beforehand and equipment and specialist staff adequately adapted.

The recording of data must be easily feasible during partly chaotic clinical duties. Data must be ascertained by using clearly regulated case definitions by staff who are regularly trained for this purpose. Then, it should be interpreted carefully by a medical coordinator in weekly and/or monthly reports and forwarded to the different protagonists. After an earthquake, it should be assumed that the post-impact phase starts after 48 h at the latest. The impact phase with life-saving surgical and intensive medical intervention is, therefore, predominantly completed. The course of these phases is independent of whether the earthquake takes place in an industrial nation or in a developing country. Only the number of those persons affected will vary. Because of this short period of time, a national disaster plan must be able to cope with the impact phase more or less alone. Since general medical care has top priority in the post-impact phase, international humanitarian facilities must specialise their equipment and training to meet these requirements. ERU units are in a position to do exactly this.

With reference to the ERU concept, it may be considered whether basic health care units should be sent immediately to function as triage units and regular assessment units. These units must be on the spot within 48 h. At the same time, they are flexible enough to suitably adapt their activities to general medical requirements in the further course of events.

Conflict of interest statement The authors confirm that there are no relevant associations that might pose a conflict of interest.

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